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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,706	09/06/2006	Naoto IKEGAWA	80079(302721)	3043

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EXAMINER	
JACKSON, MONIQUE R	

ART UNIT	PAPER NUMBER
1787	

MAIL DATE	DELIVERY MODE
08/02/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/591,706	IKEGAWA, NAOTO	
	Examiner	Art Unit	
	MONIQUE JACKSON	1787	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-10 and 13-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-10 and 13-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed 5/23/11 has been entered. New claims 17-21 have been added. Claims 1, 2, 4-10 and 13-21 are pending in the application. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

2. Claims 1-2, 4-10 and 13-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto II (USPN 7,014,921) in view of Ohbe et al (USPN 6,296,930) or JP 07-304936 (JP'936) or Furuta et al '004 for generally the reasons recited in the prior office action and restated below. With respect to new claims 17-19, the Examiner takes the position that one having ordinary skill in the art at the time of the invention would have been motivated to utilize functionally equivalent imidazole compounds and functionally equivalent catalysts to those disclosed by the prior art and that the instantly claimed imidazoles and catalysts are known, functionally equivalent catalysts utilized in the art for the same purpose and would have been obvious to one skilled in the art at the time of the invention. In terms of Claims 20 and 21, though Okamoto II teaches a thermal treatment step, Okamoto II does not specifically teach heating under an inert-gas atmosphere as instantly claimed however one having ordinary skill in the art at the time of the invention would have been motivated to determine the optimum atmosphere conditions for a particular end use wherein inert atmosphere is an obvious state in the art in order to avoid unwanted reactions particularly unwanted reactions with oxygen.

3. Okamoto II teaches a metal-coated resin molded article comprising a film or substrate of a liquid-crystalline polyester resin composition and a metal layer formed on said film wherein the metal layer may be formed by a physical vapor deposition method and the film may be

subjected to corona discharge treatment, UV irradiation treatment or plasma treatment to enhance adhesion between the film and the metal (Abstract; Col. 9-10, line 9.) Okamoto II teaches that the metal may be gold, silver, copper, nickel or aluminum, wherein copper is preferred for a TAB-tape and printed circuit board (Col. 10, lines 11-14.) Okamoto II teaches that the liquid-crystalline polyester resin composition comprises an aromatic liquid-crystalline polyester that is the reaction product obtained by performing ester-exchange and polycondensation reaction in the presence of an imidazole catalyst compound such as 1-methylimidazole (reads upon the claimed chemical formula; Col. 3-7, particularly Col. 6, lines 1-18.) Okamoto II also teaches that the resin composition can further comprise another resin other than the liquid-crystalline polyester such as a copolymer of glycidyl methacrylate and polyethylene (*an epoxy-group containing ethylene copolymer*) but does not specifically teach the amount of the copolymer in the composition or the weight percentages of glycidyl methacrylate to ethylene in the copolymer as instantly claimed. However, Ohbe et al (Col. 16-17) or JP'936 or Furuta et al '004 teach that the incorporation of a glycidyl methacrylate/ethylene copolymer in amounts as instantly claimed with ethylene and glycidyl methacrylate contents as claimed provides improvements to the liquid crystalline polyester resin composition and hence one having ordinary skill in the art at the time of the invention would have been motivated to follow the teachings of Ohbe et al or JP'936 or Furuta et al '004 in producing the liquid-crystalline polyester resin composition and metal-coated laminate thereof as taught by Okamoto II given the predictable results and reasonable expectation of success. With regards to Claims 5-7, Okamoto II teaches that the resin composition may further contain various fillers including various fibers, plate-like fillers and whiskers (Col. 9, line16-27; Col. 10, lines 30-51) in an amount of 0.1 to 400

parts by weight, preferably from 10 parts by weight to 400 parts by weight, relative to 100 parts by weight of the aromatic liquid-crystalline polyester (Col. 10, lines 51-58; reads upon the claimed fillers and weight parts.) Though Okamoto II teaches various fiber-like inorganic fillers, Okamoto II does not specifically teach the claimed diameter and aspect ratio however it is well established in the art that the filler diameter and aspect ratio are result-effective variables affecting the mechanical properties of the resulting resin and molded article and hence one having ordinary skill in the art at the time of the invention would have been motivated to determine the optimum particle diameter and aspect ratio to provide the desired properties for a particular end use wherein values within the claimed ranges are typical in the art. With regards to Claim 13, Okamoto II teaches that the laminate may be subjected to a heat treatment step but does not specifically recite the claimed heating conditions however one having ordinary skill in the art at the time of the invention would have been motivated to utilize routine experimentation to determine the optimum heating temperature based upon a particular resin composition given the reasonable expectation of success. Lastly, with regards to Claim 16, though Okamoto II teaches that the metal laminate comprising the liquid-crystalline polyester resin film and the metal layer formed thereon, particularly a copper layer for PCBs, may be utilized in producing PCBs, Okamoto II does not specifically teach forming the circuit pattern on the metal or copper layer by laser patterning however laser patterning is an obvious method of producing circuit patterns in the art and would have been obvious to one having ordinary skill in the art at the time of the invention.

Response to Arguments

4. Applicant's arguments filed 5/23/11 have been fully considered but they are not persuasive. The Applicant first argues that Okamoto II, Furata or Ohbe do not teach or suggest a molded article as instantly claimed but fails to specifically point out how the language of the claims patentably distinguishes them from the references as presented in the combined rejection as discussed above. The Applicant further agues that the tear resistance of the instant invention is remarkably improved and that one of ordinary skill in the art would have had no reasonable expectation of success in combining the cited references to prevent deteriorations in toughness and strength as achieved by the instant claims however the Examiner takes the position that these properties would flow naturally from following the suggestions of the prior art and that the Applicant has failed to provide a clear showing of unexpected results in order to overcome of the obviousness rejection. In terms of the newly submitted claims, the Examiner refers to the added comments above and maintains that the instantly claimed invention would have been obvious over the teachings of the prior art.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONIQUE JACKSON whose telephone number is (571)272-1508. The examiner can normally be reached on Mondays-Thursdays, 10:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Monique R Jackson/
Primary Examiner, Art Unit 1787
August 1, 2011